Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An image processing unit for computing a sequence of output images on basis of a sequence of input images, comprising:

    - a motion estimation unit for computing a motion vector field on basis of the input images, the motion vector field comprising a first motion vector belonging to a first group of pixels and a second motion vector belonging to a second group of pixels;

    - a quality measurement unit for computing a value of a quality measure for the motion vector field;

    - an interpolation unit for computing a first one of the output images by means of interpolation of pixel values of the input images, the interpolation being based on the motion vector field, wherein the interpolation unit is arranged to perform a motion compensated interpolation of the pixel values of the input images on basis of the motion vector field, if the value of the quality measure is lower than a predetermined threshold and is arranged to perform an alternative interpolation of the pixel values of the input images, if the value of the quality measure is higher than the predetermined threshold, wherein the interpolation unit mixes intermediate images from the motion compensated interpolation and from the alternative interpolation; and

    - control means to control the interpolation unit on basis of the quality measure, characterized in that the quality measurement unit is arranged to compute the value of the quality measure on basis of a maximum difference between the first motion vector and the second motion vector, wherein the motion estimation unit, the quality measurement unit, the interpolation unit, and the control means are implemented using a processor.

2. (previously presented) An image processing unit as claimed in claim 1, characterized in that the first group of pixels is a neighboring group of pixels of the second group of pixels.

3. (canceled)

4. (previously presented) An image processing unit as claimed in claim 1, characterized in that the alternative interpolation comprises a non-motion compensated interpolation.

5. (previously presented) An image processing unit as claimed in claim 1, characterized in that the alternative interpolation comprises a replication of the pixel values of the input images.

6. (previously presented) An image processing unit as claimed in claim 2, characterized in that the quality measurement unit is arranged to compute the value of the quality measure on basis of a maximum difference between the horizontal component of the first motion vector and the horizontal component of the second motion vector.

7. (previously presented An image processing unit as claimed in claim 2, characterized in that the first group of pixels is located horizontally from the second group of pixels.

8. (previously presented) An image processing unit as claimed in claim 1, characterized in that the predetermined threshold is an adaptive threshold.

9. (previously presented) An image processing unit as claimed in claim 8, characterized in that the adaptive threshold is based on match errors being computed for the first and second motion vectors.

10. (previously presented) An image processing apparatus comprising:
        - receiving means for receiving a signal corresponding to a sequence of input images; and

- an image processing unit for computing a sequence of output images on basis of the sequence of input images, as claimed in claim 1.

11. (previously presented) An image processing apparatus as claimed in claim 10, characterized in further comprising a display device for displaying the output images.

12. (previously presented) An image processing apparatus as claimed in claim 11, characterized in that it is a TV.

13. (currently amended) A method of computing a sequence of output images on basis of a sequence of input images, comprising:

- computing a motion vector field on basis of the input images, the motion vector field comprising a first motion vector belonging to a first group of pixels and a second motion vector belonging to a second group of pixels;

- computing a value of a quality measure for the motion vector field;

- computing a first one of the output images by means of interpolation of pixel values of the input images, the interpolation being based on the motion vector field, wherein the computing the first one of the output images by means of interpolation of pixel values of the input images comprises performing a motion compensated interpolation of the pixel values of the input images on basis of the motion vector field, if the value of the quality measure is lower than a predetermined threshold and performing an alternative interpolation of the pixel values of the input images, if the value of the quality measure is higher than the predetermined threshold, wherein computing the first one of the output images comprises mixing intermediate images generated by performing the motion compensated interpolation and by performing the alternative interpolation; and

- controlling the interpolation of pixel values on basis of the quality measure, characterized in that the value of the quality measure is computed on basis of a maximum difference between the first motion vector and the second motion vector,

wherein computing the motion vector field, computing the value of the quality measure, computing the first one of the output images, and controlling the interpolation

of the pixel values are performed using a processor.

14. (previously presented) An image processing unit as claimed in claim 9, wherein the value of the adaptive threshold is relatively high when the match errors being computed for the first and second motion vectors are relatively low.

15. (currently amended) An image processing unit for computing a sequence of output images on basis of a sequence of input images, comprising:

     - a motion estimation unit for computing a motion vector field on basis of the input images, the motion vector field comprising motion vectors, wherein each of the motion vectors belongs to a group of pixels;

     - a quality measurement unit for computing a value of a quality measure for the motion vector field;

     - an interpolation unit for computing a first one of the output images by means of interpolation of pixel values of the input images, the interpolation being based on the motion vector field; and

     - control means to control the interpolation unit on basis of the quality measure, characterized in that the quality measurement unit is arranged to compute the value of the quality measure on basis of the maximum of the differences between the motion vectors,

     wherein the motion estimation unit, the quality measurement unit, the interpolation unit, and the control means are implemented using a processor.

16. (previously presented) An image processing unit as claimed in claim 15, wherein the group of pixels of one of the motion vectors is a neighboring group of pixels of the groups of pixels of the rest of the motion vectors.

17. (new) An image processing unit as claimed in claim 1, characterized in that the interpolation unit comprises a motion compensated interpolator to perform the motion compensated interpolation of the pixel values of the input images on basis of the motion vector field, a non-motion compensated interpolator to perform the alternative

interpolation of the pixel values of the input images, two multipliers that are controlled by the control means, and an adding unit.

18. (new) An image processing unit as claimed in claim 1, characterized in that the control means modifies the motion vector field from the motion estimation unit, wherein the interpolation unit computes the first one of the output images by means of interpolation of the pixel values of the input images based on the modified motion vector field.

19. (new) An image processing unit as claimed in claim 15, characterized in that the interpolation unit comprises a motion compensated interpolator to perform the motion compensated interpolation of the pixel values of the input images on the basis of the motion vector field, a non-motion compensated interpolator to perform the alternative interpolation of the pixel values of the input images, and a switch coupled to the motion compensated interpolator and the non-motion compensated interpolator, wherein the switch is controlled by the control means.

20. (new) An image processing unit as claimed in claim 15, characterized in that the interpolation unit mixes intermediate images from the motion compensated interpolation and from the alternative interpolation.

21. (new) An image processing unit as claimed in claim 20, characterized in that the interpolation unit comprises a motion compensated interpolator to perform the motion compensated interpolation of the pixel values of the input images on the basis of the motion vector field, a non-motion compensated interpolator to perform the alternative interpolation of the pixel values of the input images, two multipliers that are controlled by the control means, and an adding unit.